

## NEW SPECIES OF *BULBOPHYLLUM* SECTION *OXYSEPALUM* (ORCHIDACEAE) IN AUSTRALIA

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### Summary

*Bulbophyllum grandimesense*, *B. lewisense* and *B. windsorensense*, all members of section *Oxysepalum* from north-eastern Queensland, are described as new and their relationships with previously known species of the section are discussed. A key to Australian species in section *Oxysepalum* is included.

### Introduction

As outlined by Dockrill (1969), the section *Oxysepalum* Schltr. in the genus *Bulbophyllum* Thouars in Australia contains two species, viz *B. gadgarrense* Rupp and *B. wadsworthii* Dockr. Field studies by the senior author have revealed three further species which are here described as new. Two species are closely related to *B. wadsworthii*, the other to *B. gadgarrense*.

### Taxonomy

***Bulbophyllum grandimesense*** B. Gray & D. Jones **species nova** affinis *B. wadsworthii* Dockr. sed foliis angustioribus et petiolatis, floribus majoribus concoloribus eburneis ad albis differt. **Typus:** Queensland. COOK DISTRICT: T.R. 146, Parish of Monkhouse, Tableland L.A., 15°43'S, 145°17'E, 800 m, 3 May 1983, *B. Gray* 3045 (holo: QRS; iso: BRI).

Plant epiphytic, consisting of a few semi-erect to pendulous rarely branched stems to about 8 cm long; roots wiry, ca 0.5 mm diameter, mainly from basal nodes, some stem-embracing adventitious roots arising from upper nodes; rhizomes ca 1 mm diameter, covered by pale brown to dark brown scarious bracts, 8–25 mm between pseudobulbs; pseudobulbs 4–6 mm × 1.5–2.5 mm, more or less ovoid to cylindrical, green, sulcate on underside, decurrent. Leaf lamina 14–50 mm × 3–5 mm, linear to linear-oblong, more or less round in cross-section with a narrow groove on the upper surface, on petioles 4–5 mm long. Pedicels ca 1.5 mm long, bracteate; flowers ca 8 mm long, solitary at nodes, white throughout, sepals spreading to about 7 mm apart at tips; sepals subsimilar, 8–9 mm × 2–2.5 mm, narrowly triangular, constricted in distal third, apices long-acuminate to filiform; petals ca 2.5 mm × ca 1.5 mm, more or less ovate, narrowing at base, slightly incurved; labellum ca 2.3 mm × ca 1.3 mm, fleshy, distinctly 3-lobed, erect in proximal half, then curving in a semi-circle, surface smooth, lateral lobes ca 1.5 mm long, erect, mid-lobe obtuse; column ca 1.2 mm long; stelidia ca 0.6 mm long, very short, broadly triangular, blunt to rounded; column foot ca 2.2 mm long, curved; anther cap ca 0.5 mm × ca 0.5 mm, with a prominently deflexed rostrum ca 0.13 mm long. Capsule not seen. **Fig. 1.**

**Specimens examined** (all QRS): **Queensland.** COOK DISTRICT: T.R. 146, Parish of Monkhouse, Tableland L.A. 15°43'S, 145°17'E, 800 m, May 1983, *Gray* 3045; T.R. 146, Parish of Monkhouse, Big Tableland, 15°42'S, 145°16'E, 500 m, Aug 1984, *Gray* 3524.

**Distribution and habitat:** At present this species is known only from the Big Tableland on the Trevethan Range north of the Bloomfield River. It grows in highland rainforest between 500–800 m altitude. Plants favour the small, upper branches of trees in the rainforest canopy.

**Flowering Period:** May–June.

**Notes:** *Bulbophyllum grandimesense* has some affinities with *B. wadsworthii* but it can be readily distinguished by its much narrower, petiolate leaves and the larger, uniformly coloured cream to white flowers. The flowers of *B. wadsworthii* are also cream to white but have a brown to orange-brown labellum. *B. grandimesense* is the only member of the section *Oxysepalum* known to grow on the Big Tableland.

**Conservation Status:** *Bulbophyllum grandimesense* is a poorly collected species and from the collections available appears to be restricted to a fairly limited, highland habitat. Its conservation status is 2RC according to Leigh, Briggs and Hartley (1981).

**Etymology:** The specific epithet is derived from the Latin *grandis*, big, and the Spanish *mesa*, tableland, a reference to the distribution of this species on the Big Tableland.

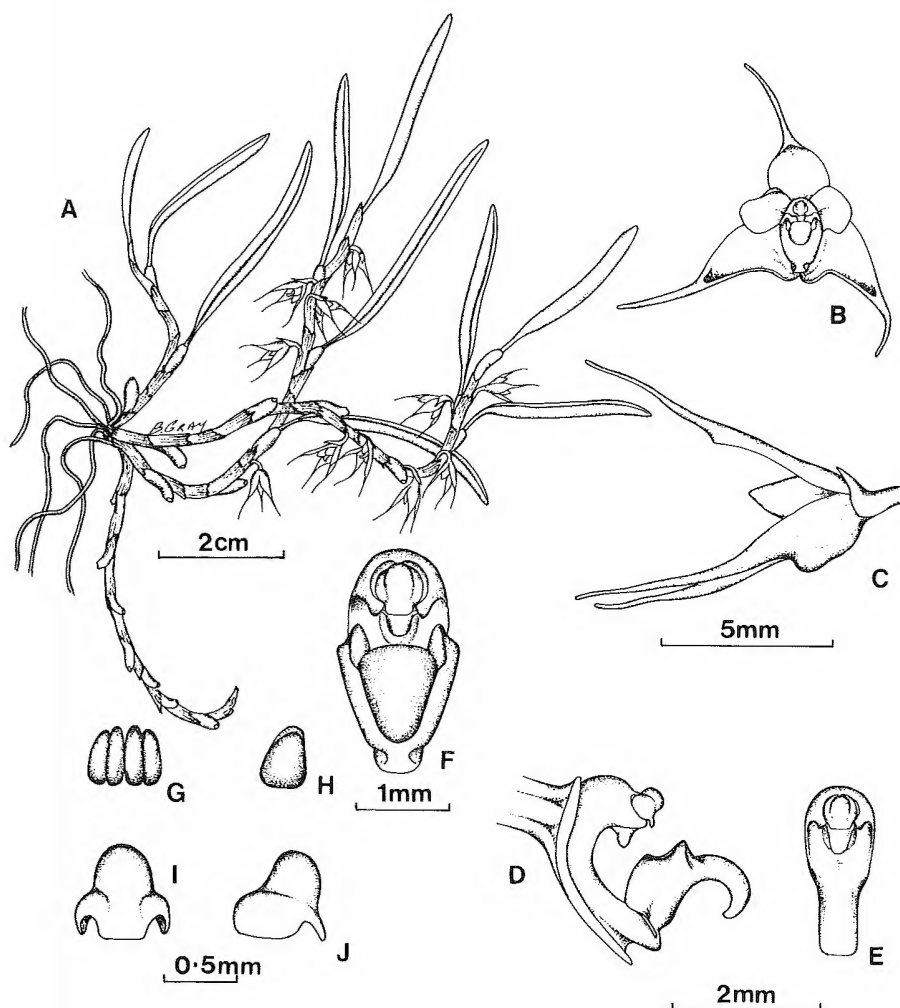


Fig. 1. *Bulbophyllum grandimesense*: A. habit. B. flower from front. C. flower from side. D. column and labellum from side. E. column from front. F. column and labellum from front. G. pollinia from front. H. pollinia from side. I. anther from front. J. anther from side. All from Gray 3045.

***Bulbophyllum lewisense*** B. Gray & D. Jones **species nova** affinis *B. gadgarrensi* Rupp  
sed plantis exilioribus, pseudobulbis conspicuis nudis, floribus albis differt. **Typus:**  
Queensland. COOK DISTRICT: S.F.R. 143, South Mary L.A. 16°30'S, 145°15'E,  
1000 m, 13 October 1979, *B. Gray* 1539 (holo: QRS; iso: BRI,NSW).

Plant epiphytic, consisting of a few semi-pendulous or spreading, rarely branched stems to about 15 cm long; roots wiry, ca 0.5 mm diameter, mainly from basal nodes, some adventitious stem-embracing roots arising from upper nodes; rhizomes ca 1 mm diameter, covered by pale brown, scarious bracts, 5–10 mm between pseudobulbs; pseudobulbs 4–5 mm × 3–3.5 mm, more or less ovoid, green, sulcate on underside, decurrent. Leaf lamina 15–22 mm × 3–5 mm, narrowly oblong to narrowly elliptic, thick and fleshy, dark green, slightly curved, deeply grooved on upper surface, more or less cordate in cross section, shortly petiolate. Pedicels ca 3.5 mm long, bracteate; flowers ca 5 mm long, white throughout, solitary at nodes, sepals spreading to about 4 mm apart at the tips; sepals subsimilar, 5–6 mm × 1.5–2 mm, narrowly triangular, apices cymbiform, acuminate; petals 2–2.5 mm × ca 0.8 mm, oblong, slightly spreading; labellum ca 2 mm × ca 1 mm, fleshy, distinctly three-lobed, erect in proximal half then curving in a semi-circle, surface smooth, lateral lobes ca 1 mm long, erect, mid-lobe obtuse; column ca 0.8 mm long; stelia ca 0.4 mm long, narrowly triangular, bluntly pointed; column foot ca 2 mm long, curved; anther cap ca 0.4 mm × 0.5 mm, with a prominent deflexed rostrum ca 0.1 mm long. Capsule not seen. **Fig. 2.**

**Specimens examined.** (all QRS). COOK DISTRICT: S.F.R. 143, Parish of Riflemead, North Mary L.A., 16°31'S, 145°16'E, 1100 m, Aug 1986, *Collins* s.n.; Zarda Roots Creek, Jan 1936, *Flecker*, Flecker Herbarium 1303; S.F.R. 144, Parish of Whypalla, Bower Bird L.A., 16°15'S, 145°01'E, 1240 m, Aug 1984, *Gray* 3535; S.F.R. 143, South Mary L.A., 16°30'S, 145°15'E, 100 m, Oct 1979, *Gray* 1539; S.F.R. 144, Cockatoo L.A., 16°17'S, 145°05'E, 960 m, Jul 1982, *Gray* 2671; S.F.R. 143, Parish of Riflemead, 16°32'S, 145°17'E, 1100 m, Oct 1984, *Gray* 3574.

**Distribution and habitat:** *B. lewisense* occurs on Mt Lewis, Carbine Tableland and Windsor Tableland. It grows on trees in rainforest at medium to high elevations (900–1200 metres) and seems to favour slender trunks or small branches in the upper canopy.

**Flowering Period:** September and October.

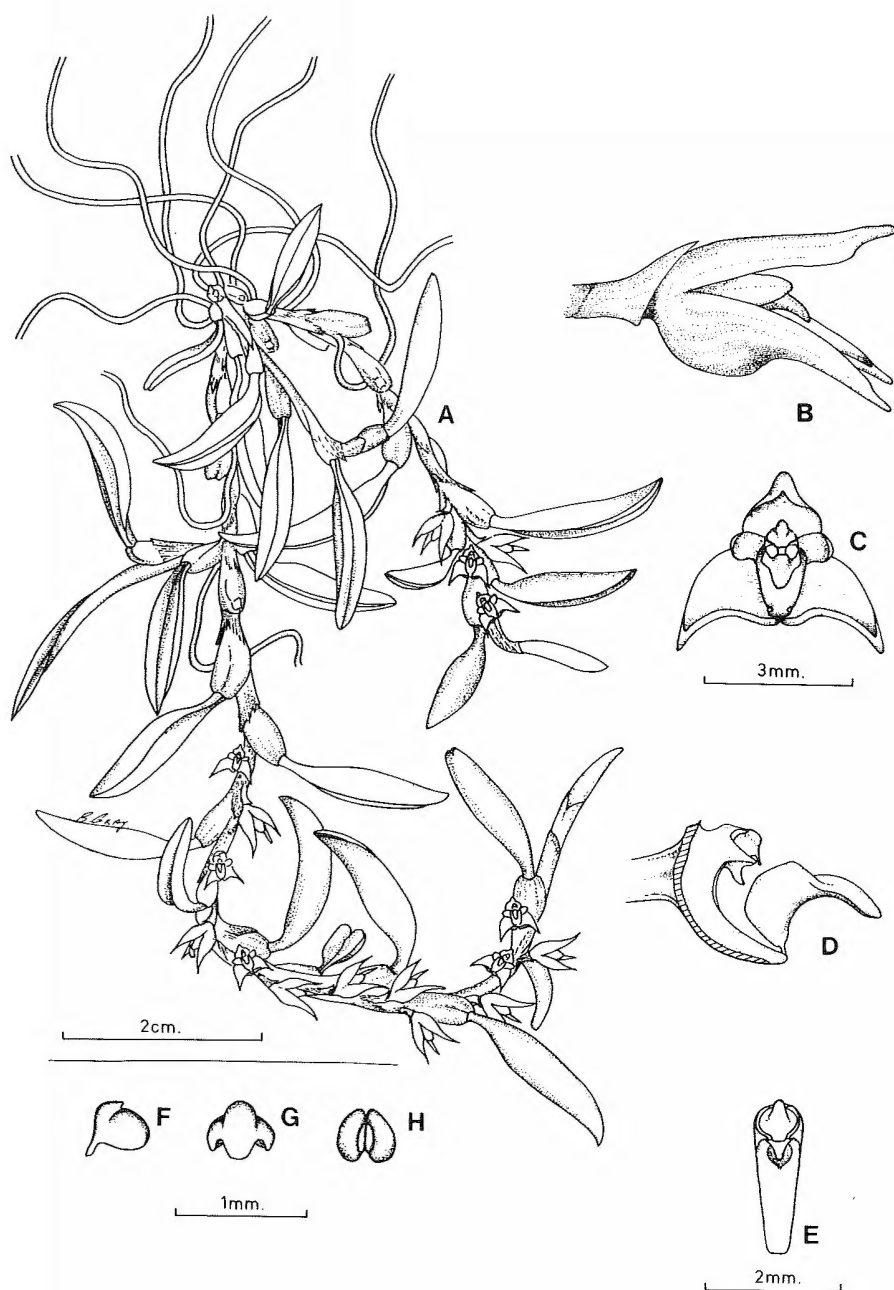
**Notes:** *B. lewisense* has as its closest congener *B. gadgarrense* but it can be readily distinguished by the smaller, more open plants, naked, conspicuous pseudobulbs and white flowers. The two species grow together in some areas but are easily distinguished. The new species always forms small, sparse clumps and the roots arise mainly from the base of the stems. This contrasts with *B. gadgarrense* in which many of the roots arise from aerial nodes along the stems.

**Conservation Status:** Sparsely distributed but not rare.

**Etymology:** The specific epithet refers to the type locality, Mt Lewis.

***Bulbophyllum windsorensense*** B. Gray & D. Jones **species nova** affinis *B. wadsworthii* Dockr.  
sed foliis brevioribus valde canaliculatis, floribus majoribus concoloribus eburneis  
ad viridi-eburneis differt. **Typus:** Queensland. COOK DISTRICT: S.F.R. 144, Parish  
of Whypalla, Bower Bird L.A., 16°14'S, 143°00'E, 1220 m, 15 June 1981, *B. Gray*  
4503 (holo: QRS; iso: BRI,NSW).

Plant epiphytic, consisting of a few to several, upright to pendulous, rarely branched stems to 30 cm long; roots wiry, ca 0.5–0.8 mm diameter, arising from basal nodes or base of branches; rhizomes 1–1.5 mm diameter, covered by brown scarious bracts, 8–20 mm between pseudobulbs; pseudobulbs 5–8 mm × 4–5 mm, obovate to almost cylindrical, decumbent, truncate, only partly obscured by bracts. Leaves 12–30 mm × 4–6 mm, narrowly elliptic to oblong, sessile, acute, thick and fleshy, more or less round in cross section, broadly and deeply grooved on the upper surface, often compressed laterally closing the groove. Peduncles ca 4–6 mm long including the ovary, bracteate; flowers solitary or in pairs from nodes and internodes, cream or greenish cream, 10–13 mm long, sepals spreading 7–16 mm apart at the apices; sepals subsimilar, 9–12 mm × 3.5–4.5 mm, narrowly triangular, constricted in the distal half, apices filiform, lateral sepals connate for about 2 mm at the base; petals 2–3 mm × 1.2–1.5 mm, obovate; labellum 2.2–2.5 mm × 1.6–2 mm when flattened, fleshy, erect in proximal half then curved in a semicircle, surface smooth, lateral lobes ca 1 mm long, erect, midlobe recurved, 1–1.2 mm long, more or less obtuse; column 1–1.2 mm long; stelia very



**Fig. 2.** *Bulbophyllum lewisense*: A. habit. B. flower from side. C. flower from front. D. column and labellum from side. E. column from front. F. anther from side. G. anther from front. H. pollinia from front. All from Gray 1539.



short, oblong; column foot 1.5–1.8 mm long, curved almost in a semicircle with the column; anther *ca* 0.35 mm × 0.35 mm, with a deflexed rostrum. Capsule not seen. **Fig. 3.**

**Distribution and habitat:** Known only from highland rainforests of the Mt Windsor Tableland. Common at elevations above 1000 m and growing in small clumps on the upper branches of trees in the rainforest canopy.

**Flowering Period:** May–August.

**Notes:** *B. windsorensense* is probably most closely related to *B. wadsworthii*, but it can be readily distinguished by the larger, uniformly coloured flowers and the shorter, deeply grooved leaves.

**Conservation status:** Its conservation status is 3RC according to Leigh, Briggs & Hartley (1981).

**Etymology:** The specific epithet refers to the type locality, Windsor Tableland.

### Discussion

The five Australian species of *Bulbophyllum* in section *Oxysepalum* are confined to north-eastern Queensland where they grow in highland rainforests above 500 m altitude. All species grow on trees with *B. wadsworthii* and *B. gadgarrense* sometimes also found on boulders. Field observations indicate that the newly described species are relatively uncommon to rare and they tend to occupy different ecological niches. Further exploration of isolated highland regions in north-eastern Queensland could result in the discovery of new taxa in this group. Members of this section can be identified from non-flowering material and an illustration of cross-sections and outlines of leaves is included (**Fig. 4**), as these provide valuable diagnostic characters.

### Key to Australian species of *Bulbophyllum* section *Oxysepalum*

1. Leaves petiolate ..... 2  
    Leaves sessile ..... 4
2. Leaf lamina narrowly grooved (more or less round in cross-section);  
    petioles 4–6 mm long; pseudobulbs 4–7 mm long, 2–3 mm broad,  
    conspicuous; flowers white or creamy white; sepals long acuminate ..... **B. grandimesense**  
    Leaf lamina broadly grooved or channelled in cross-section ..... 3
3. Leaf lamina very thick and fleshy, nearly oblong, 15–25 mm long, 3–4  
    mm broad; petioles 1–3 mm long; pseudobulbs 2–3 mm long, 1–1.2  
    mm broad, almost concealed by stem bracts; flowers yellow or orange;  
    sepals narrowly triangular, obtuse ..... **B. gadgarrense**  
    Leaf lamina thin, narrowly elliptic 20–45 mm long, 3–6 mm broad;  
    pseudobulbs 4–5 mm long, 3–3.5 mm broad, conspicuous; flowers  
    white or creamy white; sepals broadly triangular, acute or shortly  
    acuminate ..... **B. lewisense**
4. Leaf lamina narrowly grooved (nearly round in cross-section), 20–80 mm  
    long; flowers white, creamy white or pale green; labellum orange or  
    orange brown; sepals long acuminate ..... **B. wadsworthii**  
    Leaves broadly grooved in cross-section ..... 5
5. Leaf lamina short, thick and fleshy, nearly oblong, 15–30 mm long, 4–6  
    mm broad; flowers pale yellow or greenish yellow; sepals long  
    acuminate ..... **B. windsorensense**  
    Leaf lamina thin, narrowly elliptic 20–45 mm long, 3–6 mm broad; flowers  
    white or creamy white; sepals acute or shortly acuminate ..... **B. lewisense**

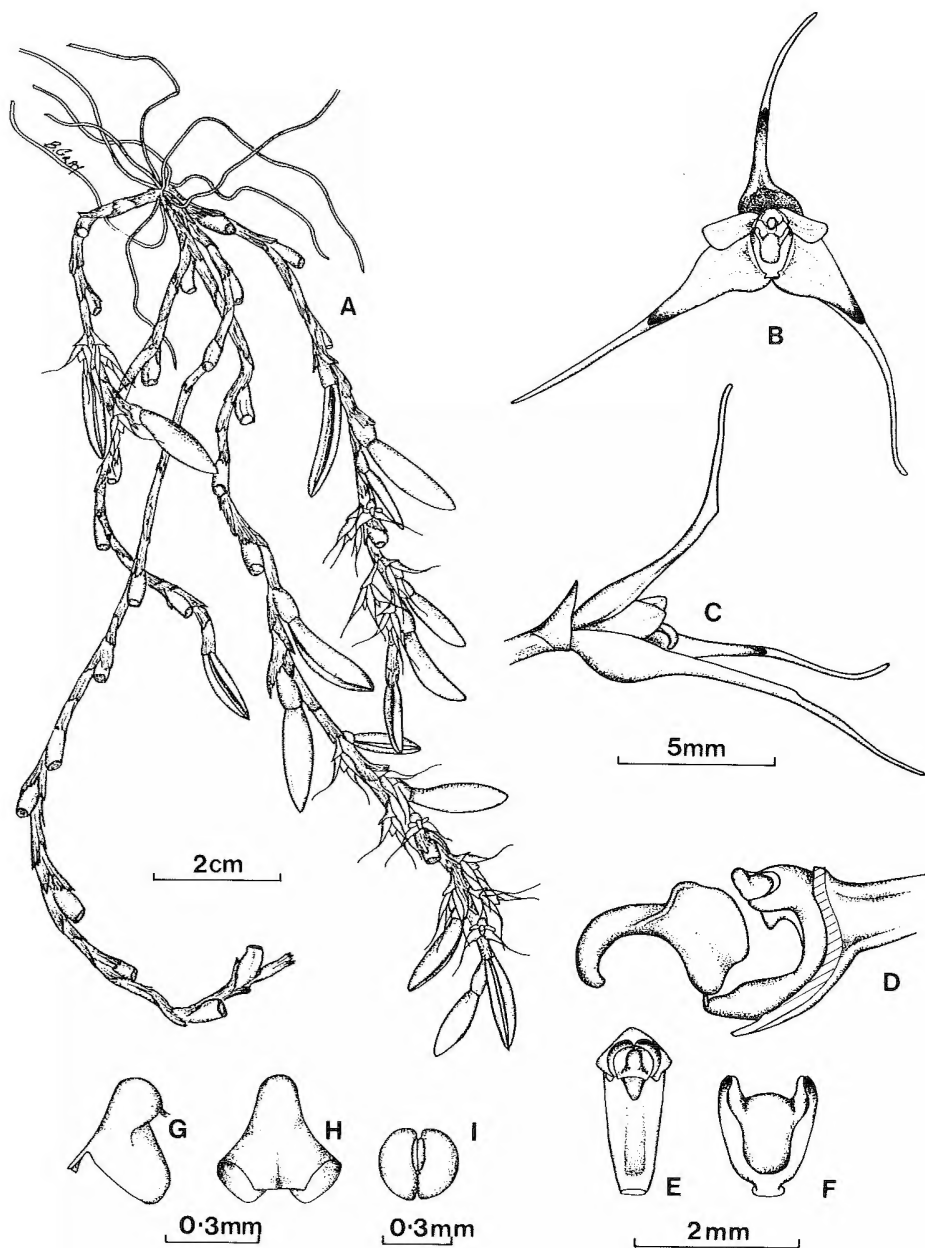


Fig. 3. *Bulbophyllum windsorens*: A. habit. B. flower from front. C. flower from side. D. column and labellum from side. E. column from front. F. labellum from front. G. anther from side. H. anther from front. I. pollinia from front. All from Gray 4503.



Fig. 4. Leaf, pseudobulb and bract habit of *Bulbophyllum* sect. *Oxysepalum*. 1. *B. grandimesense*. 2. *B. windorensense*. 3. *B. wadsworthii*. 4. *B. lewisense*. 5. *B. gadgarrense*.

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